

8.14 GARRETT COUNTY

This chapter presents information about stream conditions of potential management interest in Garrett County based on the 2000-2004 Maryland Biological Stream Survey (MBSS) results. Information from MBSS data collected between 1994 and 1997 can be found in MDNR 20011.

8.14.1 Ecological Health

Based on the three ecological health indicators used by the MBSS, the overall condition of Garrett County streams during 2000-2004 was Fair (Figure 8-105). The FIBI results indicate that 21% of the streams in the county were in Good condition, while 39% rated Good using the BIBI. In contrast, 46% of the streams in the county scored as Poor or Very Poor using the CBI, while 23% scored as Good and 32% scored as Fair.

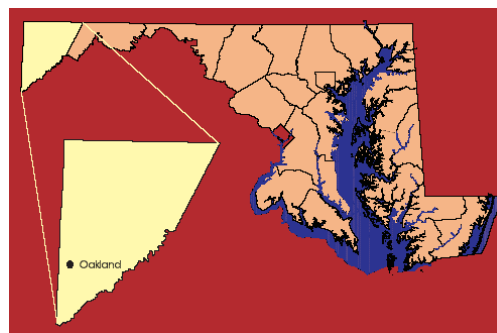
Within the county, the greatest concentration of streams rated in Good condition was the area in and around Savage River State Forest. Another area with predominantly Good sites was the lower portion of the Youghiogheny drainage, near the Pennsylvania border. The largest concentration of streams in Very Poor condition was the area around Deep Creek Lake. The highest rated stream in Garrett County using the Combined Biotic Index (CBI) was Crabtree Creek, while the lowest rated streams included Three Forks Run, Cherry Creek, the North Branch Casselman River and Millers Run (Table 8-27). Based on Stream Waders volunteer data, conditions were generally Good for benthic macroinvertebrates in the Youghiogheny and Savage River watersheds, and Poor or Very Poor in the area around Deep Creek Lake (Table 8-28).

Four MBSS Sentinel sites were located in Garrett County. These streams included: the Savage River mainstem, Crabtree Creek, Bear Creek, and Double Lick Run. Sentinel sites were chosen to provide a representation of the best remaining streams around the state and track natural variations in stream health. Where possible, Sentinel sites are located in watersheds with as much protected land as possible, or in areas projected to become degraded from development at a slower pace. More information about the MBSS Sentinel stream network is found in: 2000-2004 Maryland Biological Stream Survey Volume 11: Sentinel Sites (http://www/dnr/Maryland.gov/streams/pubs/ea05-8_sentinel.pdf).

8.14.2 Physical Habitat

8.14.2.1 Overall Condition

Based on the Physical Habitat Index (PHI), 49% of the stream miles in Garrett County had Minimally Degraded



habitat, 33% had Partially Degraded habitat, and 18% had Degraded or Severely Degraded habitat (Figure 8-106). Similar to the distribution of sites with high biotic integrity, the highest concentrations of sites with Minimally Degraded PHI ratings occurred in and near the Savage River State Forest, followed by the lower Youghiogheny drainage above Friendsville. The southern part of the county had the largest number of sites with Severely Degraded physical habitat.

8.14.2.2 Trash

Over 82% of the stream miles in Garrett County were rated Optimal for trash (Figure 8-107). In contrast, only 3% of streams were rated as being in Marginal condition, and none were rated as being in Poor condition. Low amounts of trash were consistently seen in and around Savage River State Forest and generally on state-owned lands, as well as the lower portion of the Youghiogheny drainage in Maryland.

8.14.2.3 Channelization

About 7% of the stream miles in Garrett County were channelized (Table 8-4). Rip-rap, culvert pipes, gabion baskets and concrete were the types of documented channelization in the county. Most channelized streams were located in the southern half of the county, in the vicinity of Oakland (Figure 8-108).

8.14.2.4 Inadequate Riparian Buffer

Over 8% of the stream miles in Garrett County had no riparian buffers during the 2000-2004 MBSS (Table 8-3). In addition, 7% of stream miles had severe breaks in existing riparian buffers. Sites without riparian buffers were scattered throughout the county, but were more common in the southern region (Figure 8-109). Buffer breaks were similarly widespread, but again more frequent in the southern part of the county. Additional information about buffer breaks, analyzed by county, is provided in: 2000-2004 Maryland Biological Stream Survey Volume 10: Riparian Zone Conditions

(http://www/dnr/Maryland.gov/streams/pubs/ea05-7_riparian.pdf).

8.14.2.5 Eroded Banks/Bedload Movement

An estimated 89% of the stream miles in Garrett County had stream banks rated in Optimal condition for erosion (Figure 8-110). In contrast, only 3% of streams were rated Poor for erosion. Sites with severe erosion problems were located primarily in southern Garrett County.

An estimated 56% of the stream miles in Garrett County had minor or no bar formation (Figure 8-110). In contrast, 34% of all stream miles were rated as having moderate bar formation, and 10% of streams had extensive bar formation. Unlike the geographic pattern observed for bank erosion, bar formation appeared to be most extensive in and around Savage River State Forest.

8.14.3 Key Nutrients

8.14.3.1 Nitrate-Nitrogen

The majority of streams in Garrett County had nitrate-nitrogen levels within the range found in mostly forested streams within Maryland (Figure 8-111). An estimated 70% of stream miles were below the 1 mg/l threshold level, and no streams had values which exceeded the 5 mg/l threshold for biological effects. There was no geographic trend in the distribution of sites with elevated nitrate-nitrogen in the county (Figure 8-111).

8.14.3.2 Total Phosphorus

Similar to nitrate-nitrogen, 86% of the stream miles in Garrett County had total phosphorus levels in the range of those observed in forested Maryland streams (Figure 8-112). No streams had total phosphorus levels above the threshold associated with biological effects. Sites with elevated levels of phosphorus tended to be concentrated in the southern portion of the county.

8.14.4 Stream and River Biodiversity

To provide a means to prioritize stream systems for biodiversity protection and restoration within each county and on a statewide basis, a tiered watershed and stream reach prioritization method was developed. Special emphasis was placed on

state-listed species, stronghold watersheds for state-listed species, and stream reaches with one or more state-listed aquatic fauna. Fauna considered included stream salamanders, freshwater fishes, and freshwater mussels. Rare, pollution-sensitive benthic macroinvertebrates collected during the 1994-2004 MBSS were also used to identify the suite of watersheds necessary to conserve the full array of known stream and river biota in Maryland. A complete description of the biodiversity ranking process is found in: 2000-2004 Maryland Biological Stream Survey Volume 9: Stream and Riverine Biodiversity (http://www/dnr/Maryland.gov/streams/pubs/ea05-6_biodiv.pdf).

Of the six watersheds found in Garrett County, the Casselman and Youghiogheny Rivers were classified as Tier 1, meaning that these watersheds serve as strongholds for one or more state listed aquatic species (Figure 8-113). It is also noteworthy that these two watersheds are among the top five in Maryland in terms of stream and river biodiversity. The Savage River was classified as a Tier 2 watershed, meaning that it serves as a stronghold for one or more non-state listed species of Greatest Conservation Need (GCN), and has state-listed aquatic fauna present. In stark contrast, the Georges Creek watershed was among the lowest ranking for stream and river biodiversity in the state (83rd of 84). Any reaches that had either state-listed or GCN species, or high intactness values were highlighted to facilitate additional emphasis in planning restoration and protection activities.

AN IMPORTANT NOTE ON BIODIVERSITY MANAGEMENT

Perhaps the largest ongoing natural resources restoration and protection effort in Maryland is associated with the Chesapeake Bay. In most cases, freshwater biodiversity is not specifically considered during placement and prioritization of Bay restoration and protection projects. In this report and in the more detailed volume in the series on aquatic biodiversity, a system of biodiversity ranking is presented to provide counties and other stewards with a means to plan appropriate protection and restoration activities in locations where they would most benefit stream and river species. Given the historically low level of funding for biodiversity protection and restoration in Maryland and elsewhere, the potential benefit of incorporating freshwater biodiversity needs into other efforts is quite large.

However, it is important to note that although freshwater taxa are the most imperiled group of organisms in Maryland, other groups and individual species not typically found in freshwater habitats are also at high risk and constitute high priority targets for conservation. In addition, freshwater taxa that prefer habitats such as small wetlands may not be well-characterized by the ranking system employed here. To conserve the full array of Maryland's flora and fauna, it is clearly necessary to use other, landscape-based tools and consider factors such as maintaining or reconnecting terrestrial travel corridors.

8.14.5 Stressors

At 56% of stream miles, the most extensive stressor characterized by the MBSS in Garrett County during the 2000-2004 MBSS was acid deposition (Figure 8-5). Other stressors found were: streams with non-native terrestrial plants in the riparian zone (32% of stream miles); non-native aquatic fauna (present in 31% of stream miles); Acid Mine Drainage (14% of stream miles); eroded banks (11% of stream miles); stream with no riparian buffer (8%); and streams with >5% urban land use upstream (2%).

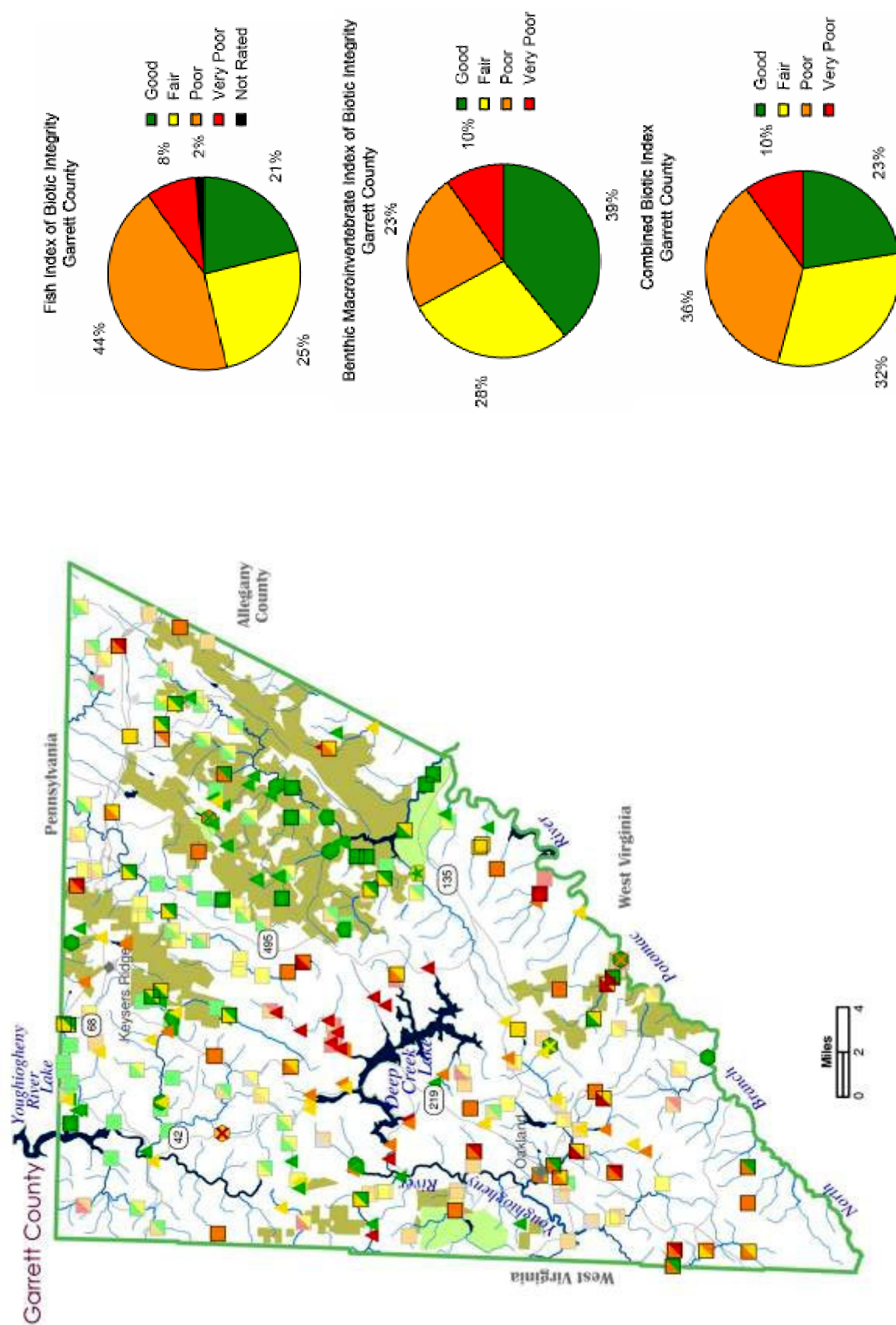


Figure 8-105. Benthic Index of Biotic Integrity (BIBI) and Fish Index of Biotic Integrity (FIBI) pie charts and map of stream health for Garrett County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie charts represent 2000-2004 data only, Combined Biotic Index pie chart represents mean of FIBI and BIBI)

Table 8-27. MBSS sites sampled in Garrett County during 1994- 2004, ranked by Combined Biotic Index Score (CBI)

Garrett County - MBSS Sites				
SITE NUMBER	STREAM NAME	WATERSHED	CBI	
<i>Best (in order of CBI score)</i>				
SAVA-204-S-2002	Crabtree Creek	Savage River	5.00	
CASS-104-R-2000	South Branch Casselman River	Casselman River	4.83	
GA-A-276-106-96	Double Lick Run	Savage River	4.75	
SAVA-276-S-2000	Double Lick Run	Savage River	4.75	
SAVA-276-S-2002	Double Lick Run	Savage River	4.75	
SAVA-225-S-2002	Savage River	Savage River	4.75	
GA-A-268-222-97	Bear Creek UT	Youghiogheny River	4.75	
SAVA-159-S-2000	Middle Fork Run	Savage River	4.71	
SAVA-225-S-2000	Savage River	Savage River	4.71	
GA-A-512-214-96	Bear Pen Run	Savage River	4.63	
SAVA-276-S-2001	Double Lick Run	Savage River	4.63	
SAVA-276-S-2003	Double Lick Run	Savage River	4.63	
SAVA-225-S-2003	Savage River	Savage River	4.63	
YOUNG-202-C-2000	Hoyes Run	Youghiogheny River	4.63	
GA-A-062-203-97	Mill Run	Youghiogheny River	4.63	
SAVA-204-C-2001	Crabtree Creek	Savage River	4.58	
SAVA-204-S-2003	Crabtree Creek	Savage River	4.58	
SAVA-159-S-2001	Middle Fork Run	Savage River	4.58	
SAVA-203-C-2000	Poplar Lick Run'	Savage River	4.58	
SAVA-308-R-2002	Savage River	Savage River	4.58	
YOUNG-432-S-2004	Bear Creek	Youghiogheny River	4.58	
GA-A-457-114-95	Little Bear Creek UT	Youghiogheny River	4.50	
GA-A-159-202-96	Middle Fork Run	Savage River	4.46	
YOUNG-432-S-2003	Bear Creek	Youghiogheny River	4.46	
YOUNG-432-S-2001	Bear Creek	Youghiogheny River	4.42	
<i>Worst (most degraded sites first)</i>				
PRUN-211-R-2001	Three Forks Run	Potomac River Upper North	1.13	
GA-A-205-222-96	Three Forks Run	Potomac River Upper North	1.38	
GA-A-011-317-97	Cherry Creek	Deep Creek Lake	1.42	
GA-A-011-301-97	Cherry Creek	Deep Creek Lake	1.50	
CASS-113-R-2000	North Branch Casselman River	Casselman River	1.63	
GA-A-251-217-97	Cherry Creek	Youghiogheny River	1.63	
YOUNG-118-R-2001	Millers Run	Youghiogheny River	1.63	
CASS-102-R-2000	Little Shade Run	Casselman River	1.75	
GA-A-143-105-97	Cherry Creek	Deep Creek Lake	1.75	
GA-A-548-317-95	Cherry Creek	Deep Creek Lake	1.75	
LYOU-116-R-2004	Trout Run UT	Little Youghiogheny River	1.75	
GA-A-496-105-96	Glade Run	Potomac River Upper North	1.88	
GA-A-551-227-95	Bear Creek UT	Youghiogheny River	1.88	
YOUNG-102-R-2001	Youghiogheny River UT1	Youghiogheny River	1.88	
CASS-111-R-2000	Little Laurel Run	Casselman River	2.00	
CASS-109-R-2000	North Branch Casselman River	Casselman River	2.00	
CASS-101-R-2000	Piney Creek UT1	Casselman River	2.00	
PRUN-106-R-2001	Elk Lick Run	Potomac River Upper North	2.00	
PRUN-109-R-2001	North Fork of Sand Run	Potomac River Upper North	2.00	
GA-A-420-325-95	Herrington Run	Youghiogheny River	2.00	
GA-A-050-201-97	Trout Run UT	Youghiogheny River	2.00	
GA-A-490-116-95	White Meadow Run	Youghiogheny River	2.00	
GA-A-470-309-96	Lostland Run	Potomac River Upper North	2.08	
GA-A-001-105-95	Block Run	Little Youghiogheny River	2.13	
GA-A-142-118-95	Deep Creek Lake UT	Deep Creek Lake	2.13	

Table 8-28. Stream Waders sites sampled in Garrett County during 2000-2004, ranked by Family-level Benthic Index of Biotic Integrity

Garrett County - Stream Wader Sites				
WATERSHED	# GOOD	# FAIR	# POOR	# VERY POOR
Casselman River	12	13	2	8
Deep Creek Lake	1	5	9	11
Georges Creek	1	1	0	1
Little Youghiogheny River	0	6	4	1
Potomac River UN Branch	2	1	1	0
Savage River	21	4	1	1
Youghiogheny River	12	8	5	0

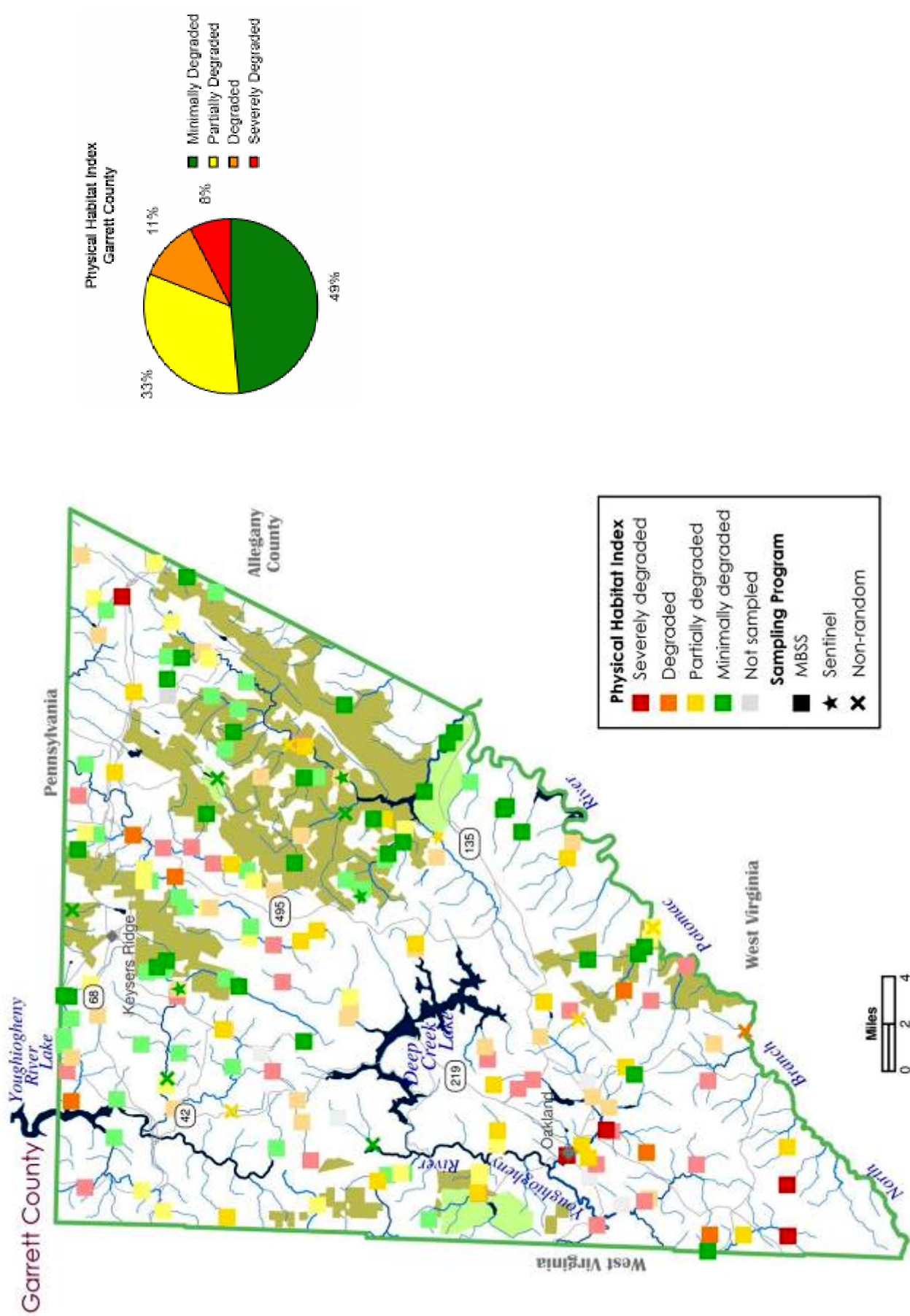


Figure 8-106. Physical Habitat Index (PHI) pie chart and map of stream habitat quality for Garrett County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only)

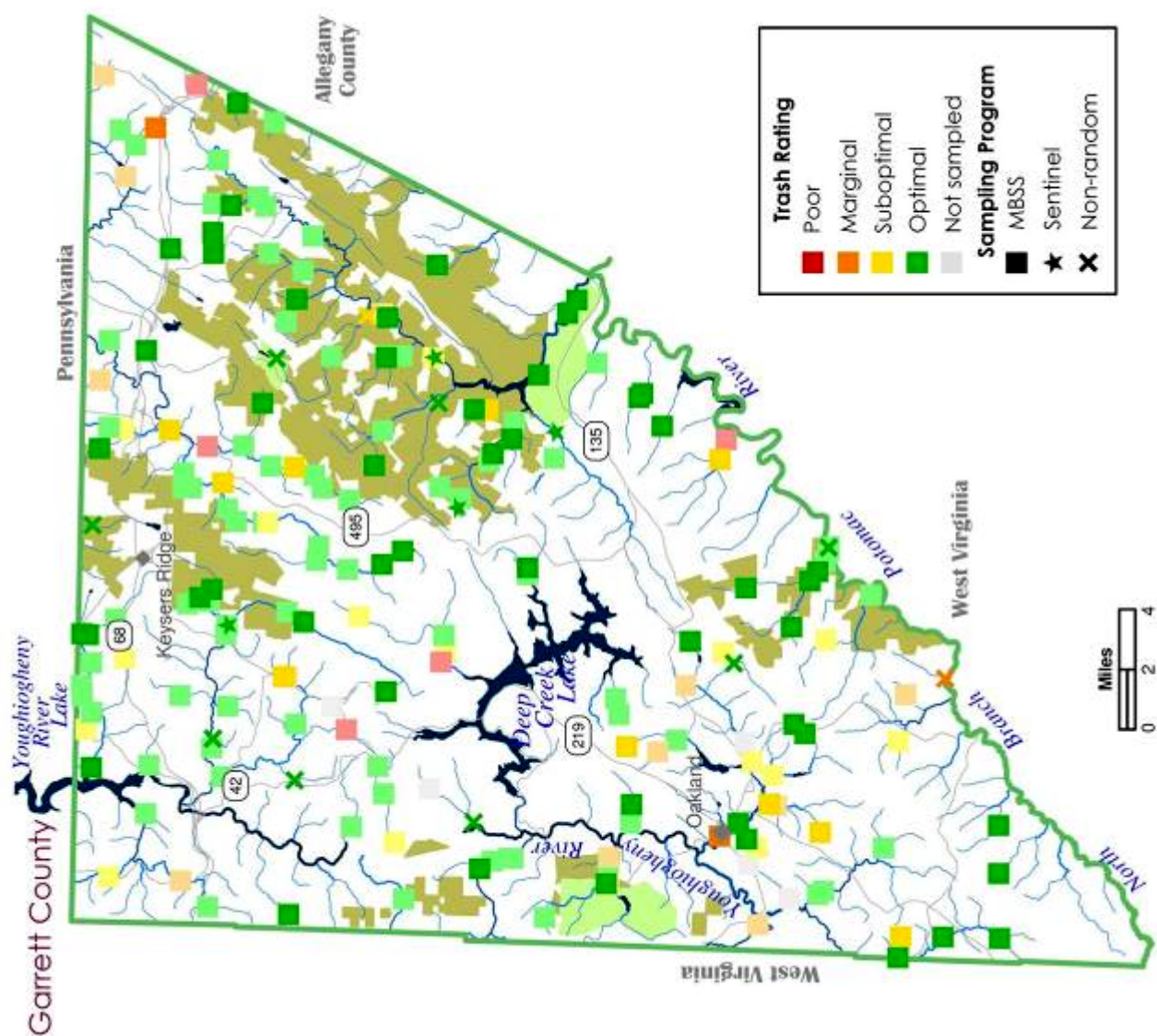


Figure 8-107. Pie chart and map of trash rating (0-20 scale) for Garrett County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only)

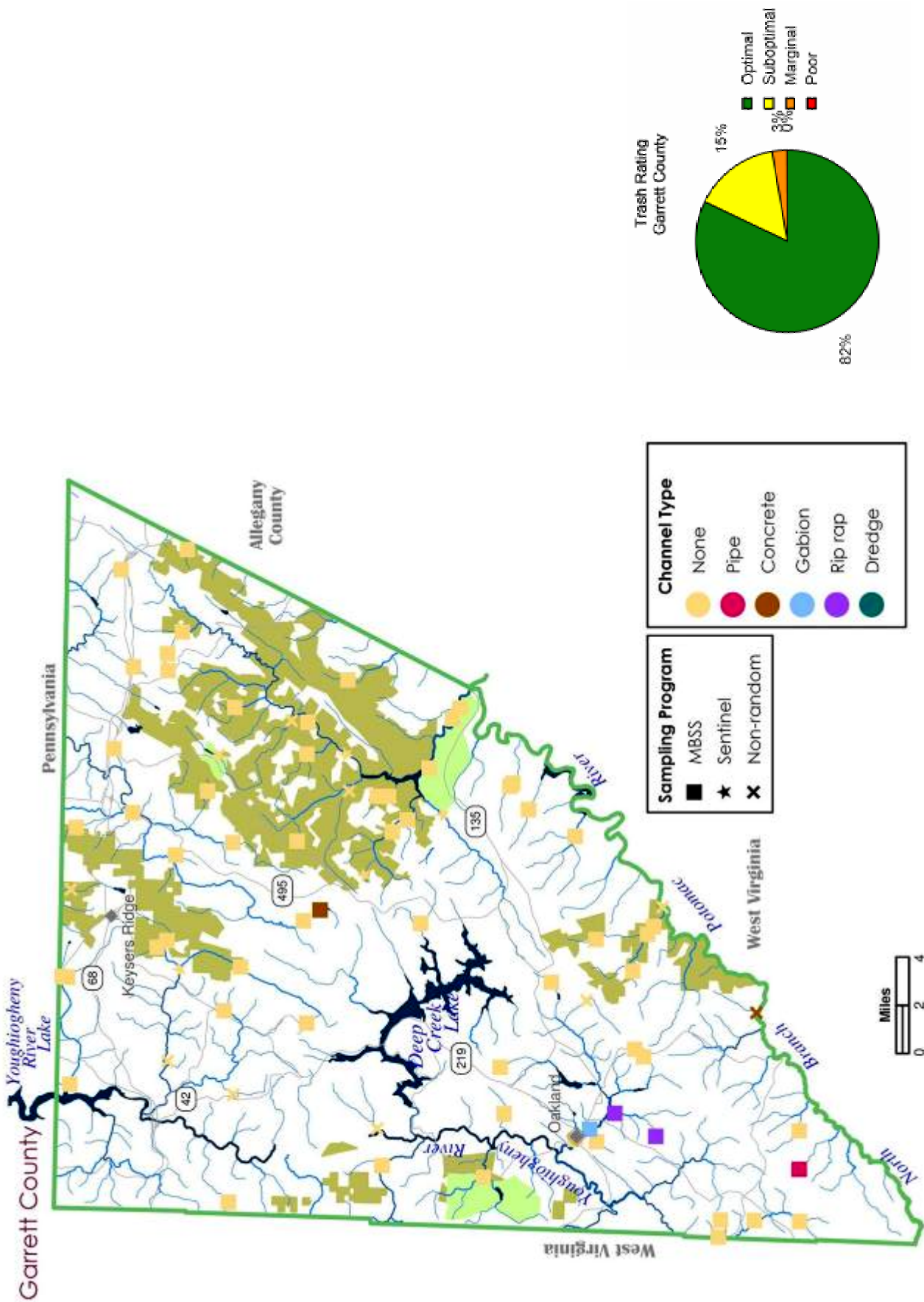


Figure 8-108. Map of channelized sites, by type, for Garrett County streams sampled by the MBSS during 2000-2004. *NOTE: When channelization is indicated, it does not necessarily mean that the entire 75m segment was affected.*

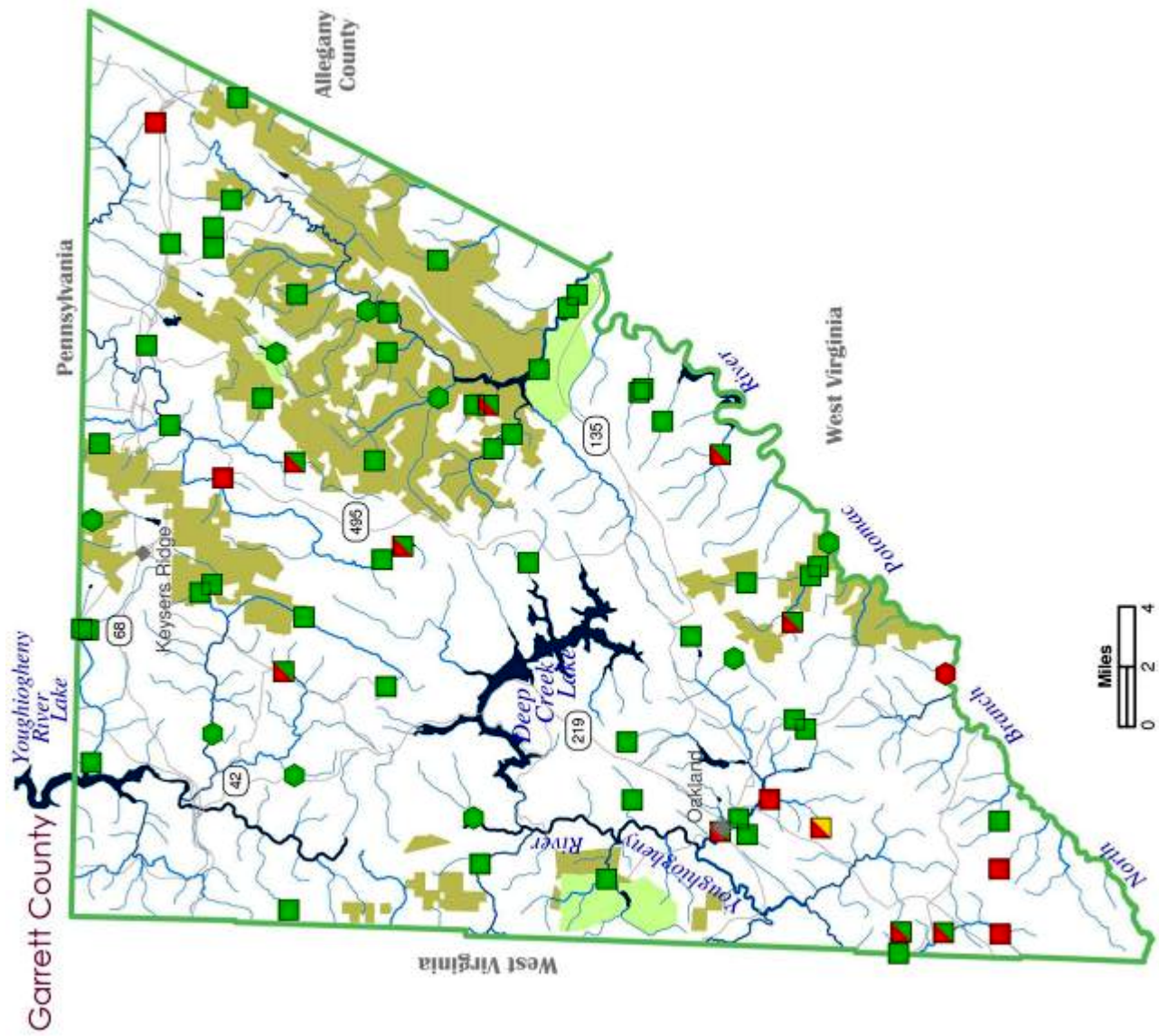


Figure 8-109. Map of sites with inadequate riparian buffers and buffer breaks for Garrett County streams sampled by the MBSS during 2000-2004. NOTE: Multiple riparian buffer breaks sometimes occurred at a site; only the most severe was depicted.

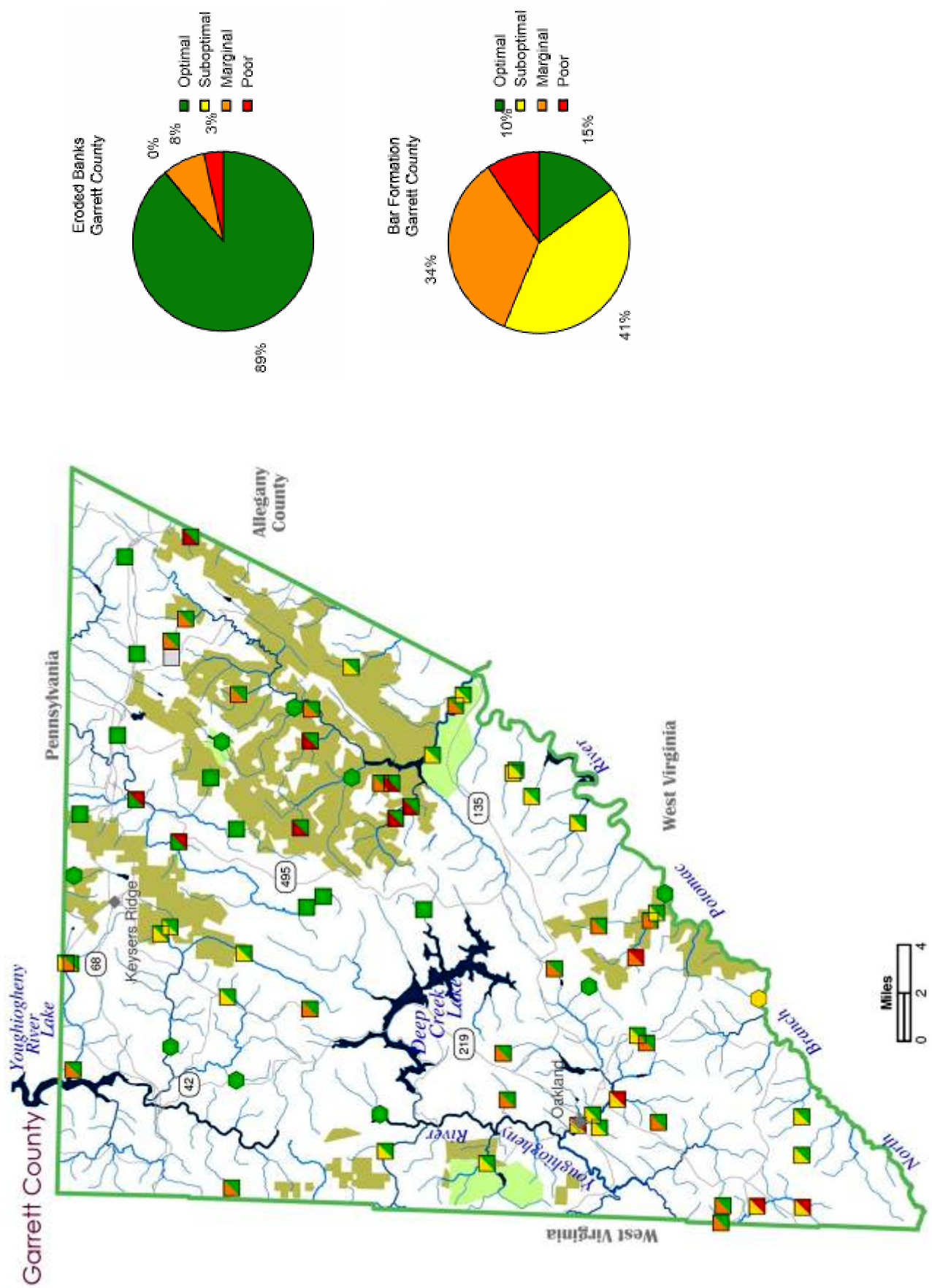


Figure 8-110. Pie charts and map of sites with eroded banks and instream bar formation for Garrett County streams sampled by the MBSS during 2000-2004

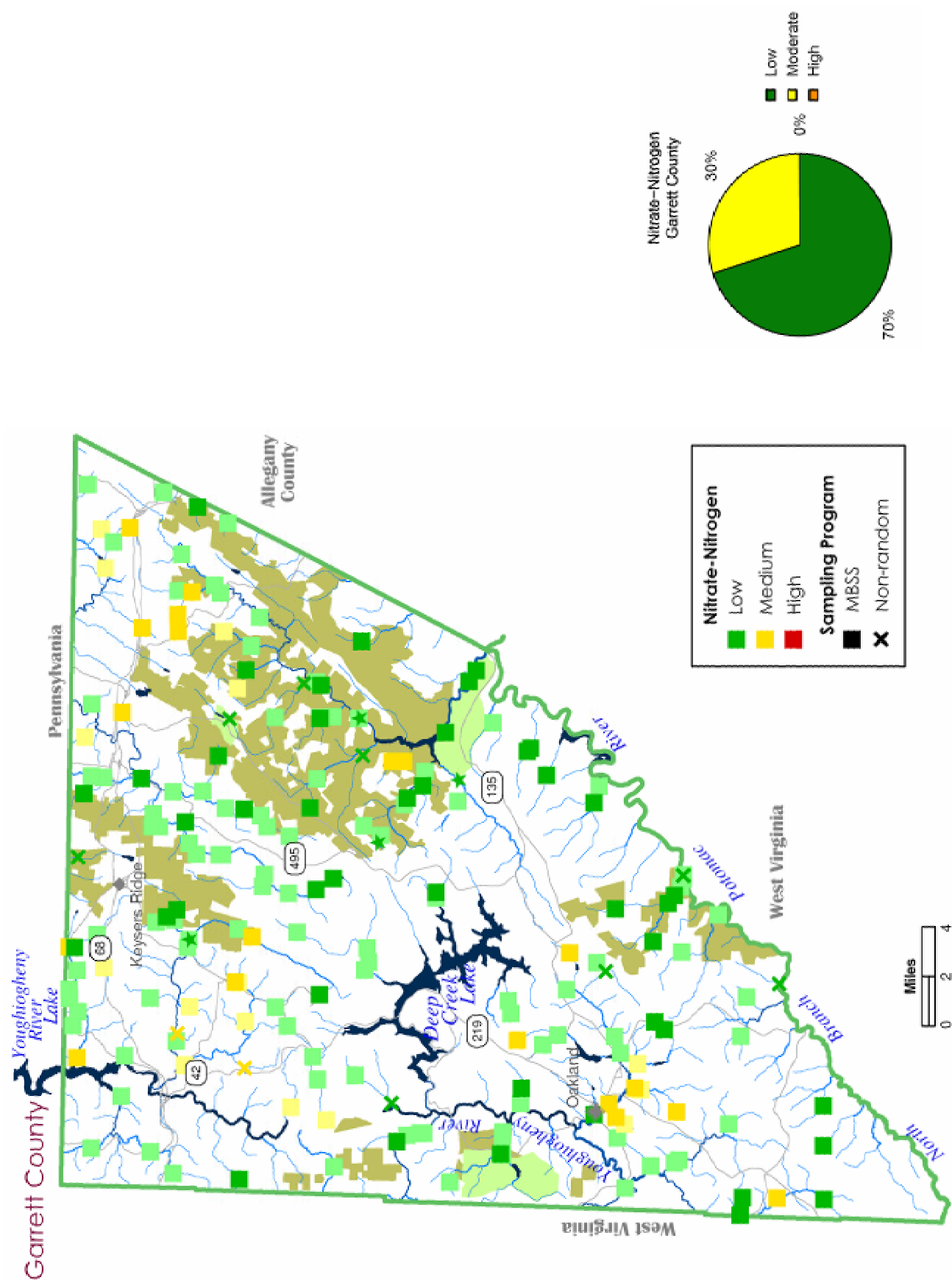


Figure 8-111. Pie chart and map of nitrate-nitrogen values (mg/l) for Garrett County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only) (Low = 1.0, Medium = 1.0 – 5.0, High = > 5.0)

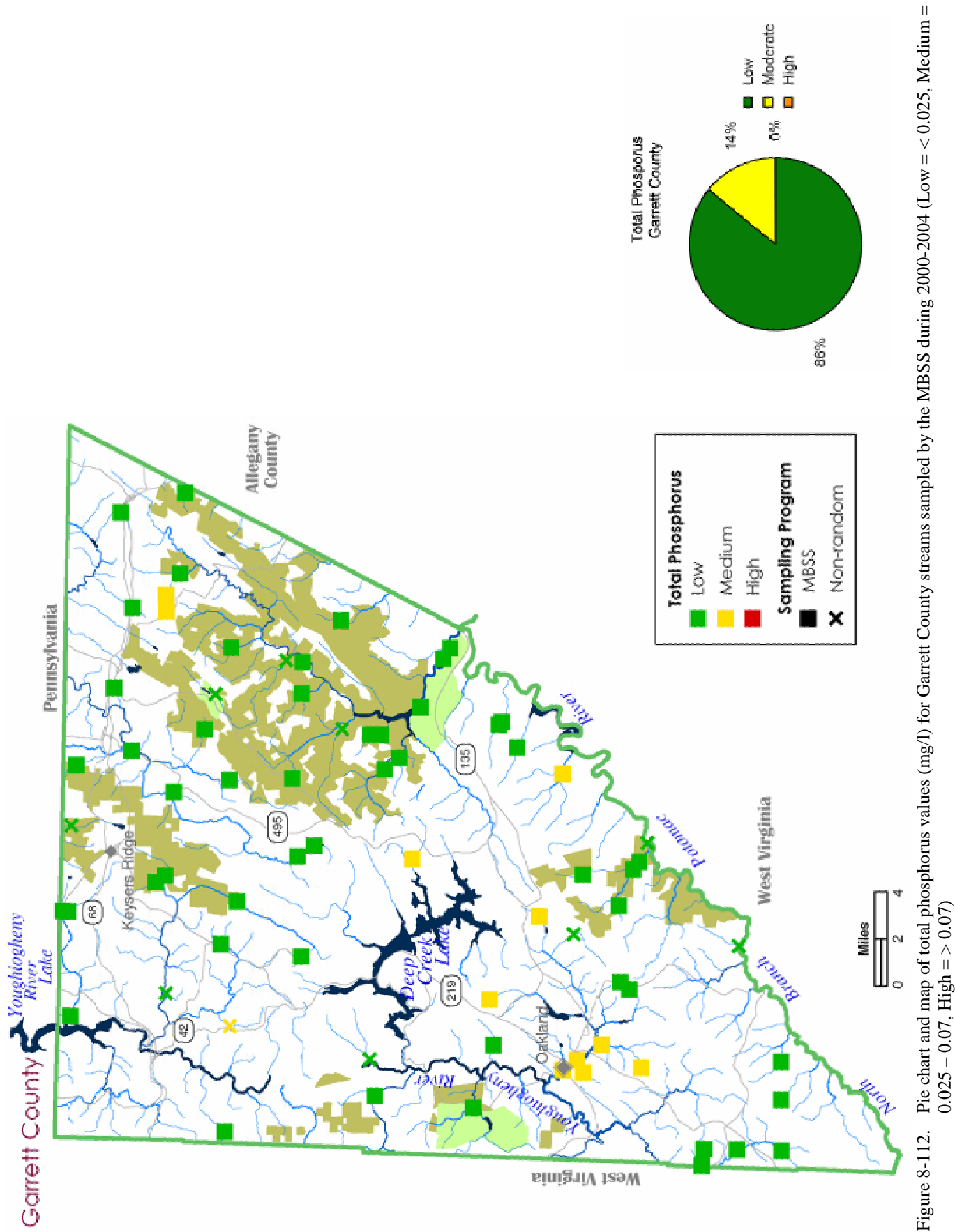


Figure 8-112. Pie chart and map of total phosphorus values (mg/l) for Garrett County streams sampled by the MBSS during 2000-2004 (Low = < 0.025, Medium = 0.025 – 0.07, High = > 0.07)

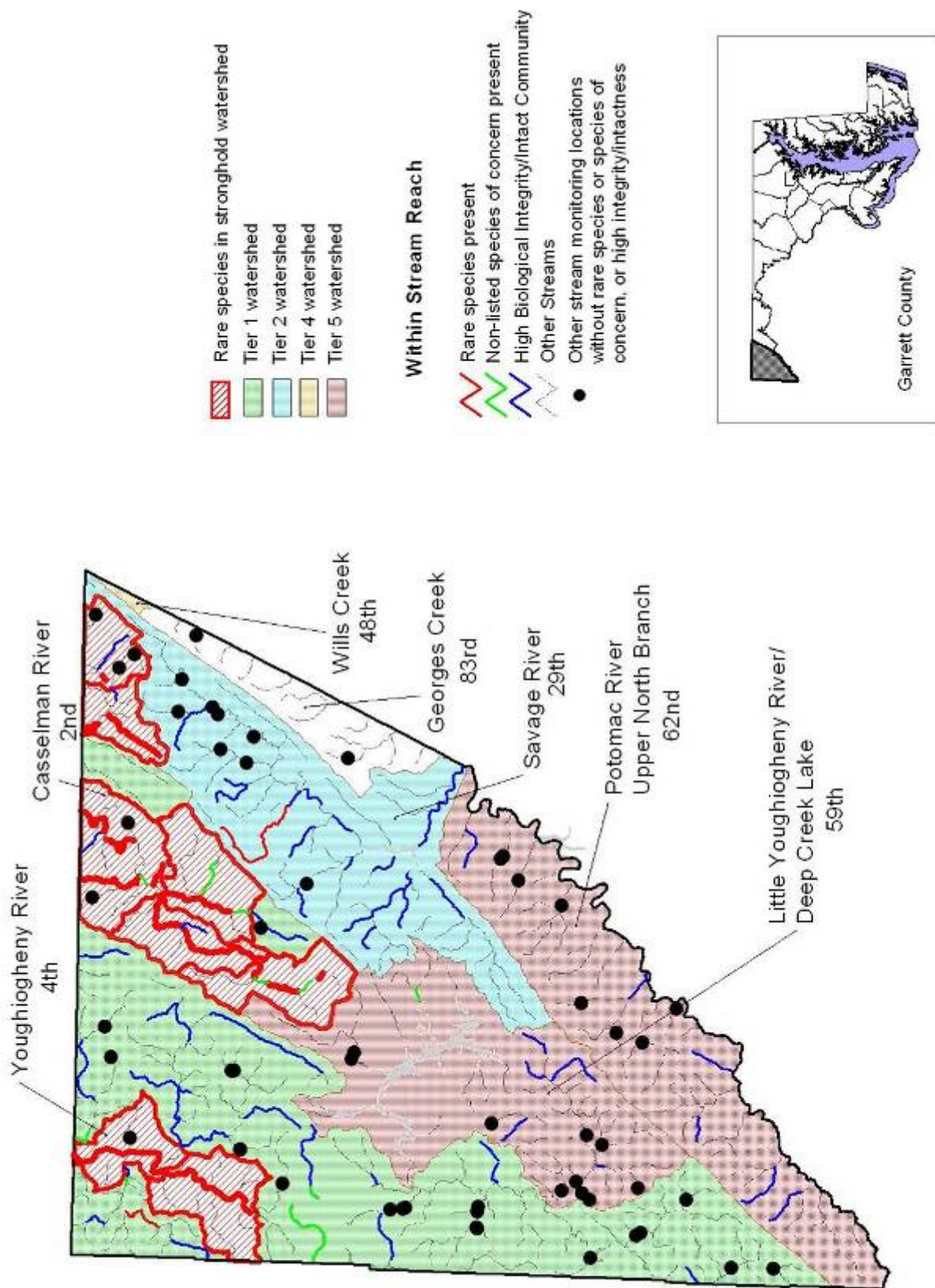


Figure 8-113. Aquatic Heritage Biodiversity Ranking map for Garrett County, by watershed. Data from MBSS 1994-2004, MBSS qualitative data, Raesly, unpub. data, Harris 1975, Thompson 1984, and DNR Natural Heritage Program database.

